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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,326	11/14/2003	Qhalid Fareed	SETI-0009	9895

23550 7590 06/06/2006

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EXAMINER

SCHILLINGER, LAURA M

ART UNIT PAPER NUMBER

2813

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,326

Applicant(s)

FAREED ET AL.

Examiner

Laura M. Schillinger

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) 10-20 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-9 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over McIntosh ('905), and further in view of Applicant's Admitted Prior Art.

McIntosh teaches the following claimed limitations as cited below:

1. A method of growing a nitride-based film, the method comprising:
applying a first precursor flux for a first element using a first pulse, wherein a pulse lasts for an approximate first duration and wherein the first element comprises nitrogen (NH₃—Col. 10, lines: 45-65)); and
applying a second precursor flux for a second element using a second pulse, wherein the second pulse has a second duration, and wherein the second duration is not equal to the first duration (Fig. 1).

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However, McIntosh fails to teach the Applicant's amended claim limitation wherein the nitrogen precursor is a series of pulses. However, Applicant's admitted prior art shows that nitrogen can be pulsed in a series of pulses (Fig. 1 (12)). It would have been obvious to one of ordinary skill in the art at the time the invention was made to pulse the nitrogen precursor as taught by Admitted Prior art because the PLE technique results in GaN layers with greater control over lattice mismatch and strain (Applicant's specification, teaching the Admitted Prior Art technique, paragraph 0005- see also Fig. 1).

2. The method of claim 1, further comprising applying a third precursor flux for a third element using a third pulse, wherein the third pulse has a third duration, and wherein the third duration is not equal to the first duration (Col. 10, lines: 15-65).

3. The method of claim 2, further comprising applying a fourth precursor flux for a fourth element using a fourth pulse, wherein the fourth pulse has the first duration (Col. 10, lines: 15-65).

4. The method of claim 3, wherein the nitrogen precursor flux comprises NH_3 , the second precursor flux comprises TMG, the third precursor flux comprises TMI, and the fourth precursor flux comprises TMA (Col. 10, lines: 1-25).

5. The method of claim 1, wherein at least a portion of the first pulse is applied at the same time that at least a portion of the second pulse is applied (Fig. 12).

6. The method of claim 1, wherein at least one of the first pulse and the second pulse has a non-rectangular waveform (Fig.14).

7. The method of claim 1, further comprising illuminating the nitride-based film with UV radiation (Col.8, lines: 30-40).

8. The method of claim 1, wherein the nitride based film is grown on a substrate comprising at least one of: lithium aluminate and silicon (Col.7-8, lines: 60-15).

9. The method of claim 1, wherein the first precursor flux further comprises a plurality of subsequent pulses, wherein each subsequent pulse has the first duration and wherein each subsequent pulse is separated from a previous pulse by a gap having the first duration (Col.10, lines: 45-65).

Response to Arguments

Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Laura M. Schillinger', with a large, stylized flourish at the end.

Laura M Schillinger

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Primary Examiner
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05/28/06